

From glowbugs@theporch.com Tue Oct 8 16:00:08 1996  
Return-Path: <glowbugs@theporch.com>  
Received: from uro (localhost.theporch.com [127.0.0.1]) by uro.theporch.com  
(8.8.0/AUX-3.1.1) with SMTP id PAA20773; Tue, 8 Oct 1996 15:51:19 -0500 (CDT)  
Date: Tue, 8 Oct 1996 15:51:19 -0500 (CDT)  
Message-Id: <199610082051.PAA20773@uro.theporch.com>  
Errors-To: conard@tntech.campus.mci.net  
Reply-To: glowbugs@theporch.com  
Originator: glowbugs@theporch.com  
Sender: glowbugs@theporch.com  
Precedence: bulk  
From: glowbugs@theporch.com  
To: Multiple recipients of list <glowbugs@theporch.com>  
Subject: GLOWBUGS digest 316  
X-Listprocessor-Version: 6.0c -- ListProcessor by Anastasios Kotsikonas  
X-Comment: Please send list server requests to listproc@theporch.com  
Status: 0

#### GLOWBUGS Digest 316

Topics covered in this issue include:

- 1) Alexanderson Alternator test transmission  
by rdkeys@csemail.cropsci.ncsu.edu
- 2) Re: Regenerative Design  
by mjsilva@ix.netcom.com (michael silva)
- 3) Re: Heterodyne detectors  
by rdkeys@csemail.cropsci.ncsu.edu
- 4) Re: RESULT: rec.radio.amateur.boatanchors passes 277:31  
by Jeffrey Herman <jherman@hawaii.edu>
- 5) Heterodyne and Regen detectors funzies continued  
by rdkeys@csemail.cropsci.ncsu.edu
- 6) More heterodyne funzies  
by rdkeys@csemail.cropsci.ncsu.edu

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Date: Tue, 8 Oct 1996 12:51:20 -0400 (EDT)  
From: rdkeys@csemail.cropsci.ncsu.edu  
To: boatanchors@theporch.com, glowbugs@theporch.com  
Cc: rdkeys@csemail.cropsci.ncsu.edu ()  
Subject: Alexanderson Alternator test transmission  
Message-ID: <9610081651.AA107280@csemail.cropsci.ncsu.edu>

>From: bkh@bwab.se  
>Subject: Alexanderson Alternator

>For those of you interested in VLF-transmissions in

>general and Alexanderson Alternator in particular  
>there will be a testtransmission in connection with  
>a ceremony declaring the Grimeton Radiostation  
>a Historic Memorial Site.

WOW. Real History in the making!

All hands mark this one down on your calendar.

That machine should be one of the 100-200KW alternators, if my memory is not too foggy. That will put out a signal that can be heard around the world, day or night on that QRG.

I would like to hear anything from anyone that can actually receive the transmission from this behemoth out of the past.

How many of us can muster up a receiver and enough wire to capture that transmission? Ricenboxen will usually have a rough time down there unless designed for the task. Old marine receivers should fare pretty well, if they go low enough. It takes real tuned circuits to work those 17442 meter waves (17.2 khz).

>The Grimeton radiostation is located 10 kilometers  
>(6 miles) east of Varberg on the Swedish west coast  
>and has the worlds only Alexanderson Alternator,  
>still in operating condition.

Yes, all the others have gone to the iron mongers. The last one in US hands went belly up in 1960 or so, and was last used on the air about the time of the Korean war. During WWII, the Alexanderson alternators in Hawaii were the only reliable long-haul to the west coast and to the fleet subs, 24 hrs a day, 7 days a week.

Keying is interesting, by means of a backshunt into a dummy load on key up and out to the antenna on key down. This is usually done with a magnetic amplifier circuit that changes a coupled circuit from being non-resonant key down to being resonant at key up to absorb the radiated load. Antennas were usually 1 to 3 miles long. Radio Central, on Long Island, NY had such antennas arranged like the spokes of a giant wheel for point to point anywhere in Europe, including Sweden. The antenna at Grimeton is 2280 meters (or 1.44 miles long).

The alternator runs at about 2500-3000 rpm, and needs to be set to precisely the correct speed so that its 300 or so poles will generate the 17.2 khz frequency. Most alternators ran on frequencies of 10-30 khz although a few ran as high as 100 khz. The machines were up to 50 feet long and weighed many many tons. These be REAL boatanchors. Even the smallest of 2 kw at 100 khz weighed in

at several tons and ran at a speed of 20,000 rpm, putting over 15 amperes of current into the antenna at 130 volts of rf. Imagine what the big one will do.....(:+}{}.....

>The testtransmission will take place on October 23,  
>1996 at approx. 0945-1015 UT on a QRG of 17.2 kHz  
>with the callsign SAQ.

HISTORY! We should definitely take a few minutes that day and dial up the LF receiver. Someone in Europe or thereabouts should record the transmission, and someone there should record the racket on site, as the machine whirrs into history. With motors as big as hundreds of horsepower to spin it up, it ain't very quiet.

>The Grimeton Radiostation is available on internet:  
><http://www.telemuseum.se/Grimeton/>

I was there, and it is a nice 5 page spread about the station and its history, well worth an electroteleportthroughtimeandspace.

>73 de Bengt Wilander, SM7BKH bkh@bwab.se

Any particulars of the history of this behemoth would be well worth noting.

Many Thanks Bengt for the info, and keep us informed of anything else as keydown approaches.

73/ZUT DE NA4G/Bob UP

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Date: Tue, 8 Oct 1996 10:35:37 -0700  
From: mjsilva@ix.netcom.com (michael silva)  
To: glowbugs@theporch.com  
Subject: Re: Regenerative Design  
Message-ID: <199610081735.KAA22512@dfw-ix6.ix.netcom.com>

>Presently, I'm collecting parts to build/model a 1935~ Home-brew Ham  
>Station. I've looked at some designs in old ARRL Handbooks and I'm  
>considering a Regen....I'm all for using newer ideas to  
>improve the performance.

Claton,

It's not a "newer" idea, since it was probably first tried about a week after Armstrong demonstrated his regenerative detector, but consider

using a separate local oscillator feeding your regenerative (but not oscillating) detector. This is simply a DC receiver with a regenerative mixer, which leads to a large increase in both selectivity and gain over a standard DC receiver, while minimizing the pulling effects of swaying antennas and strong nearby signals.

73,  
Mike, KK6GM

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Date: Tue, 8 Oct 1996 14:28:07 -0400 (EDT)  
From: rdkeys@csemail.cropsci.ncsu.edu  
To: mjsilva@ix.netcom.com  
Cc: rdkeys@csemail.cropsci.ncsu.edu (), glowbugs@theporch.com  
Subject: Re: Heterodyne detectors  
Message-ID: <9610081828.AA107409@csemail.cropsci.ncsu.edu>

> It's not a "newer" idea, since it was probably first tried about a week  
> after Armstrong demonstrated his regenerative detector, but consider  
> using a separate local oscillator feeding your regenerative (but not  
> oscillating) detector. This is simply a DC receiver with a  
> regenerative mixer, which leads to a large increase in both selectivity  
> and gain over a standard DC receiver, while minimizing the pulling  
> effects of swaying antennas and strong nearby signals.  
>  
> 73,  
> Mike, KK6GM

Mike.... this works VERY well, especially in the presence of large local signals that can blank out a regen detector on the edge of oscillation. I often will use a LM or BC-221 as the generator to beat against the detector in the RAL. Such detection is properly termed ``heterodyne'' or ``external heterodyne'' reception as opposed to ``autodyne'' (or oscillating ``regenerative'' detection). It dates from about 1910 or so in experiments using early forms of Poulsen's arc as the generator source. In days up through the early part of WWI it was used extensively by the Navy using vacuum tube oscillators. Later in the war it was left in favor of standard regenerative detectors. Later the hams have, for some reason, mislabelled it ``direct conversion''. Sounds like early history was forgotten when that label surfaced about 1970 or so. The signal required to properly heterodyne is not much, but it helps to have one about 3 times the magnitude of the incoming signal. For an experiment, one can take an old superhet and remove a turn or two from the oscillator coil and a plate or two from the oscillator condenser and make a perfectly fine heterodyne receiver out of almost nothing. An all-american-fiver can be squeeked up into 160 meters this way for CW

or SSB use from an AM receiver. Adjust the rf circuits to match the oscillator tuning range, then jumper across the IF's with an audio capacitor to the first audio stage and away you go. .... sounds like a possible Glowbugging project for 160 meters.....hmmmm....

73/ZUT DE NA4G/Bob UP

Date: Tue, 8 Oct 1996 09:36:49 -1000  
From: Jeffrey Herman <jherman@hawaii.edu>  
To: glowbugs@theporch.com  
Subject: Re: RESULT: rec.radio.amateur.boatanchors passes 277:31  
Message-ID: <960ct8.093651hwt.188151@uhunix3.its.Hawaii.Edu>

> RESULT  
> unmoderated group rec.radio.amateur.boatanchors passes 277:31  
>  
>There were 277 YES votes and 31 NO votes, for a total of 308 valid  
>votes. There was 1 abstention and 10 invalid ballots.  
>  
>For a group to pass, YES votes must be at least 2/3 of all valid  
>(YES and NO) votes. There must also be at least 100 more YES votes  
>than NO votes.  
>  
>A five day discussion period follows this announcement. If no  
>serious allegations of voting irregularities are raised, the  
>moderator of news.announce.newgroups will create the group shortly  
>thereafter.  
>  
>Newsgroups line:  
>rec.radio.amateur.boatanchors Vacuum tube-based amateur radio equipment.  
>  
>Voting closed at 23:59:59 UTC, 7 Oct 1996.  
>  
>This vote was conducted by a neutral third party. Questions  
>about this proposal should be directed to the proponent.  
>  
>Proponent: Rick Stealey <rstealey@attmail.com>  
>Votetaker: Dave Cornejo <dave@dogwood.com>  
>  
>  
>RATIONALE: rec.radio.amateur.boatanchors  
>  
>The term "Boatanchors" refers to equipment (more than 25 years old)  
>used by amateur radio operators ("hams"). The term is used by hams to  
>describe equipment which they are particularly fond of, usually for

>nostalgic reasons. All over the world, in daily conversations on the  
>air, hams lovingly refer to old gear they are operating as their  
>"favorite boatanchor rig". Ususally such discussions involve  
>locating, restoring, collecting, and finding parts for, old ham radio  
>equipment. A boatanchor may have been home built, military, or once  
>produced by a manufacturer long since out of business. In order to  
>have a Usenet forum for similar discussions,  
>rec.radio.amateur.boatanchors is proposed.

>

>The term "boatanchor" may not, at first, be descriptive to a person  
>who is not a ham. Every hobby has terms that are specific to that  
>particular hobby. Baseball has "dugouts", golf has a "wood", and an  
>"iron", and British cars have "bonnets". Within amateur radio,  
>working other stations at long distances could never possibly be  
>referred to as anything other than "DX". It has been that way for 80  
>years. Low power operating, likewize, is ONLY known as operating QRP.  
>In a similar manner, old rigs are referred to the world over by hams  
>as "boatanchors".

>

>There is increasing interest in boatanchor equipment by hams.  
>Currently boatanchor discussions are held in rec.radio.misc. A large  
>variety of specialized topics relating to boatanchor collecting (see  
>charter) substantiate the need for the proposed new newsgroup. During  
>the pre-RFD discussion phase there was a substantial amount of  
>interest in the newsgroup name (over 100 articles). During the RFD  
>period, discussion concentrated on the charter, and topics to be  
>included in the newsgroup. Both discussions indicate a great need for  
>and interest in the subject newsgroup.

>

>

>CHARTER: rec.radio.amateur.boatanchors

>

>The newsgroup, rec.radio.amateur.boatanchors, is primarily for  
>discussions of topics related to classic amateur radio gear.  
>Participation by others who are not licensed radio amateurs are also  
>welcome.

>

>EQUIPMENT.

>Appropriate equipment of the boatanchor category includes:

- >- equipment constructed primarily with vacuum tubes, not solid
- > state devices, and manufactured generally in the post WW
- > II-to-1970 timeframe.
- >- transmitters (amateur, military, home made)
- >- receivers (amateur, SWL, military, home made)
- >- station accessories (keys, bugs, microphones)
- >- test equipment from the boatanchor era used in the repair and
- > restoration of boatanchors, such as scopes, af and rf generators,
- > meters of all kinds, etc.)

>- parts and techniques used in construction of boatanchors (vacuum  
> tubes, condensers, etc.)

>

>TOPICS.

>Topics regarding the above equipment built entirely or primarily with  
>vacuum tubes (as opposed to solid state devices) are welcomed in this  
>newsgroup. Suitable boatanchor topics may include:

>- collecting

>- modifying

>- tuning

>- obtaining parts (specific requests for parts/equipment are permitted)

>- manuals and TM (tech manuals) copies exchange

>- restoration and refinishing

>- values of boatanchor gear

>- sources for parts

>- questions and advice for others

>- Morse Code operation - advice, legends and lore

>- Modes of operation: CW, AM, early SSB

>- manufacturing during the boatanchor era, including companies,

> personalities, and manufacturing techniques

>- design and engineering history of equipment of the boatanchor era

> and comparisons to prior technology (arc- and spark-gap transmitters,

> Alexanderson alternators, galena detectors, magnetrons, Nixies,

> quartz crystals).

>- other subjects of a historical nature

>- commercial postings, if SPECIFICALLY offering products and services

> DIRECTLY relating to boatanchor collecting.

>

>

>OFF CHARTER TOPICS.

>The following subjects are off topic in this newsgroup:

>- discussions of hi-fi, stereo, and/or broadcast receivers. (use

> rec.antiques.radio+phono and rec.audio.tubes newsgroups)

>- antique equipment (use rec.antiques.radio+phono)

>- entertainment television receivers

>- cross postings from rec.radio.swap

>- discussions that are more appropriately held in other rec.radio.amateur

> newsgroups, such as code vs no-code

>- off-topic commercial postings are specifically prohibited from the

> newsgroup

>

>FAQ.

>- A list of Frequently Asked Questions will be developed by volunteers

> in the newsgroup and will be posted monthly. This FAQ will be helpful

> to beginners as well as first time visitors to the newsgroup. The FAQ

> will contain a list of commercial vendors who specialize in products and

> services of value to boatanchor collectors.

>

>END CHARTER.

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Date: Tue, 8 Oct 1996 16:49:24 -0400 (EDT)  
From: rdkeys@csemail.cropsci.ncsu.edu  
To: glowbugs@theporch.com  
Cc: rdkeys@csemail.cropsci.ncsu.edu ()  
Subject: Heterodyne and Regen detectors funzies continued  
Message-ID: <9610082049.AA107556@csemail.cropsci.ncsu.edu>

While we are collectively pondering the nuances of heterodyne and autodyne detectors, we might consider the experiments conducted by our illustrious leader, Conard/WS4S. He was needing to revamp his wideopen RAS if and played with regeneration to ``spice'' it up a bit. I will let Conard fill us in on the details..... Bob/NA4G

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Date: Tue, 8 Oct 1996 17:07:35 -0400 (EDT)  
From: rdkeys@csemail.cropsci.ncsu.edu  
To: glowbugs@theporch.com  
Cc: rdkeys@csemail.cropsci.ncsu.edu ()  
Subject: More heterodyne funzies  
Message-ID: <9610082107.AA107589@csemail.cropsci.ncsu.edu>

Whilst pondering some more on the heterodyne receiver system, I chanced upon some interesting reading with schematics and theory on the subject from Elmer Bucher's Practical Wireless Telegraphy, 1917. He shows a nice diagram of the system, using a galena detector and an arc undamped oscillation generator for the local oscillator. They are link coupled to each other and the antenna system by a dual link system.

The next several pages show schematics of vacuum valve heterodyne receivers, and the US Navy adaptations of same from the WWI era as it transitioned into the regen style of autodyne.

Accompanying the theoretical discussion is a nice diagram showing how the signals are mixed and detected.

An interesting aside was a description of Goldschmidt's Tone Wheel radio frequent transformer. It appears to a mechanical interrupter about the size of an overgrown bread mixer. It basically mechanically converted the rf to audio by synchronized make/break of the incoming rf wave at an rf rate. The output was the resultant audio beat difference between the signal and the Tone Wheel chopping rate. It was used at

Tuckerton, NJ for transatlantic reception on 40khz.

Looks like a possible good project! Now, where to find a good galena, some  
spare carbon electrodes, and lots of battery power.....(:+?}.....

73/ZUT DE NA4G/Bob

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End of GLOWBUGS Digest 316

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